## SEQUENCE LISTING

<110>	Sheen, Jen	
	Kovtun, Yelena V.	
	Chiu, Wan-Ling	
	TRANSGENIC PLANTS EXPRESSING A MAPKKK FEIN KINASE DOMAIN	
<130>	00786/366002	
<150>	60/095,938	
<151>	1998-08-10	
<160>	22	
<170>	FastSEQ for Windows Version 1.0	
<210>		
<211>	21	
<212>	DNA.	
<213>	Artificial Seguence	
<220>		
<223>	Oligonucleotice primer	
<400>	3	
	aagggagaca a	23
.230-		
<210>		
<211>		
<212>		
<213>	Artificial Sequence	
<220>		
<223>	Oligonucleotide primer	
<400>	2	
ttgtctccca	aagggagata a	21
<210>	3	
<211>		
<212>		
	Artificial Seguence	
~243/		
<220>		
<223>	Oligonucleotide primer	
<400>	3	
	atgcaggttc tgattgc	27

		210>														
		212>														
				ific	י הו	Seans	nce									
	` .	.127	711 02			ocane	1100									
	< 2	20>														
			Olio	gonuc	leot	ide	prin	ner								
			-	,												
	< 4	00>	4													
gcaa	tcag	gaa d	ctg	catga	ac gg	gcgag	aag									29
		210>					,									
		211>														
			DNA													
	< 2	213>	Art:	ific	ial S	Segue	ence									
	_															
		220>	014		. 7											
	< 2	223>	0110	ponuc	:160t	llae	pri	ner								
	- 6	100>	E.													
tact	_		_	gaggt	-t t	cat										
	.090		5:	5~55.		-940										25
	< 2	210>	$\epsilon$													
		211>														
	< 2	212>	DNA													
	< 2	213>	Art:	ific:	ial S	Seque	enc∈									
						-										
	< 2	220>														
	< 2	223>	Olig	onuc	cleot	iáe	prin	ne r								
		100>														
cāca	atco	gaa a	ecct	ccatt	ta ta	agcga	agta									29
	_	13 A.	_													
		210>														
		211> 212>														
				1 á a		+ h	1	_								
	<b>\</b> 2	2157	WI al	oidoj	7575	tiia.	llane	=								
	< 4	400>	7													
Glv				Ara	Ser	Leu	Val	Phe	Arc	Pro	Ser	Ser	Asn	Len	Acr.	
1				5					1(		501	~~~	nop	15	vo'r.	
Asn	Gln	Glu	Asn	Gln	Pro	Pro	Phe	Pro	Glv	Val	Leu	Ala	gzA		Iì€	
			20					25	•				30	_, -		
Thr	Ser	Cys	lle	Arg	Lys	Ser	Lys	IJ€	Pn∈	Ile	Lys	Pro	Ser	Phe	Ser	
		35					4 C				-	45				
Pro	Pro	Pro	Pro	Ala	Asn	Thr	Val	Asp	Met	Ala	Pro	Pro	lle	Ser	Trp	
	50					5.5					60				•	
	Lys	GĵÀ	Gln	Leu		Glv	Arg	Gl y	Ala	Phe	Glÿ	Thr	Val	Tyr	Met	
65					70					75					9.6	
Gly	Met	Asn	Leu	Asp	Ser	Gly	Glu	Leu		Ala	Val	Lys	Gln	Val	Leu	
				23					90					95		

```
lle Ala Ala Asn Phe Ala Ser Lys Glu Lys Thr Gln Ala His Ile Gln
                               105
Glu Leu Glu Glu Glu Val Lys Leu Leu Lys Asn Leu Ser His Pro Asn
                           126
lle Val Arg Tyr Leu Gly Thr Val Arg Glu Asp Asp Thr Leu Asn Ile
                       135
                                           140
Leu Leu Glu Phe Val Pro Gly Gly Ser Ile Ser Ser Leu Leu Glu Lys
                   150
                                       155
Phe Gly Pro Phe Pro Glu Ser Val Val Arg Thr Tyr Thr Arg Gln Leu
               165
                                   170
Leu Leu Glý Leu Glu Tyr Leu His Asn His Ala Ile Met His Arg Asp
           180
                               185
Ile Lys Gly Ala Asn Ile Leu Val Asp Asn Lys Gly Cys Ile Lys Leu
                           200
                                              205
Ala Asp Phe Gly Ala Ser Lys Gln Val Ala Glu Leu Ala Thr Met Thr
                      215
Gly Ala Lys Ser Met Lys Gly Thr Pro Tyr Trp Met Ala Pro Glu Val
                   230
                                       235
Ile Leu Gln Thr Gly His Ser Phe Ser Ala Asp Ile Trp Ser Val Gly
                245
                                   250
Cys Thr Val Ile Glu Met Val Thr Gly Lys Ala Pro Trp Ser Gln Gln
            260
                               265
Tyr Lys Glu Val Ala Ala Ile Phe Phe Ile Gly Thr Thr Lys Ser His
       275
                           280
                                               285
Pro Pro Ile Pro Asp Thr Leu Ser Ser Asp Ala Lys Asp Phe Leu Leu
                      295
                                           300
Lys Cys Leu Gln Glu Val Pro Asn Leu Arg Pro Thr Ala Ser Glu Leu
                   310
                                      315
Leu Lys His Pro Phe Val Met Gly Lys His Lys Glu Ser Ala Ser Thr
               325
                                  330
Asp Leu Gly Ser Val Leu Asn Asn Leu Ser Thr Pro Leu Pro Leu Gln
                              . 345
lie Asn Asn Thr Lys Ser Thr Pro Asp Ser Thr Cys Asp Asp Val Gly
                           36(
Asp Met Cys Asn Phe Gly Ser Leu Asn Tyr Ser Leu Val Asp Pro Val
                      375
Lys Ser lie Gln Asn Lys Asn Leu Trp Gin Gln Asn Asp Asn Gly Gly
                    390
                                       395
Asp Glu Asp Asp Met Cys Leu lie Asp Asp Glu Asn Pne Leu Thr Phe
               405
                                   ÷10
Asp Gly Glu Met Ser Ser Thr Leu Glu Lys Asp Cys His Leu Lys Lys
                               425
Ser Cys Asp Asp Ile Ser Asp Met Ser Ile Ala Leu Lys Ser Lys Phe
                           44(
Asp Glu Ser Pro Gly Asn Gly Glu Lys Glu Ser Thr Met Ser Met Glu
                    455
Cys Asp Gin Pro Ser Tyr Ser Giu Asp Asp Glu Leu Thr Glu Ser
                   470
                                       475
Lys lie Lys Ala Phe Leu Asp Glu Lys Ala Ala Asp Leu Lys Lys Leu
                485
                                   490
Glm Thr Pro Leu Tyr Glu Glu Phe Tyr Asn Ser Leu Ile Thr Phe Ser
```

```
500
                                 505
                                                     510
 Pro Ser Cys Met Glu Ser Asn Leu Ser Asn Ser Lys Arg Glu Asp Thr
                             520
 Ala Arg Gly Phe Leu Lys Leu Pro Pro Lys Ser Arg Ser Pro Ser Arg
                         535
 Gly Pro Leu Gly Gly Ser Pro Ser Arg Ala Thr Asp Ala Thr Ser Cys
                     550
 Ser Lys Ser Pro Gly Ser Gly Gly Ser Arg Glu Leu Asn Ile Asn Asn
                 565
                                     570
 Gly Gly Asp Glu Ala Ser Gln Asp Gly Val Ser Ala Arg Val Thr Asp
                                 585
 Irp Arg Gly Leu Val Val Asp Thr Lys Gln Glu Leu Ser Gln Cys Val
                             600
Ala Leu Ser Glu Ile Glu Lys Lys Trp Lys Glu Glu Leu Asp Gln Glu
                         615
                                             620
 Leu Glu Arg Lys Arg Gln Glu lle Met Arg Gln Ala Gly Leu Gly Ser
                     630
                                         635
 Ser Pro Arg Asp Arg Gly Met Ser Arg Gln Arg Glu Lys Ser Arg Phe
                 645
                                     €50
 Ala Ser Pro Gly Lys
             660
       <210> &
       <211> 2155
       <212> DNA
       <213> Arabidopsis thaliana
       <400> &
cogctccott cotcoatcoc ttotttcco tccttcttcc pacoacoata accaooagaa
                                                                         60
ccagcetecg titeceggig treregeega taagateace terregeatee geaaategaa
                                                                        120
gatttttatc aaaccetect tetegeetec teeteetget aacactgtag acatggeace
                                                                        180
tccgatttcg tggaggaaag gtcagttaat tggtcgcggc gcgtttggta cggtgtacat
                                                                        24 C
gggtatgaat cttgactccg gggaccttct cgccgtcaaa caggttctga ttgcagccaa
                                                                        300
ttttgcttcc aaggaaaaga ctcaggctca tattcaggag cttgaagaag aagttaagct
                                                                        360
tottaaaaat ototoocato otaatatagt tagatatttg ggtacagtga gggaagatga
                                                                        420
taccctgaat atccttctcg agtttgttcc cggtggatcg atatcatcgc tcttggagaa
                                                                        48C
atttggacct tttcctgaat cagttgtccg gacatacaca aggcaactgc ttttagggtt
                                                                        540
ggagtacctg cacaatcatg caattatgca cagagacatt aagggggcta atatccttgt
                                                                        600
ggataataaa ggatgcatta agcttqctga ttttggtqca tccaaacaag tagctgagtt
                                                                        66 C
gactacqatq actggtgcaa aatctatqaa aqqqacacca tattqqatqq ctccqqaaqt
                                                                        720
tatcetteaa aetggacata gettetetge tgacatatgg agegtegget gtacagttat
                                                                        780
tgaaatggtg actgggaagg ctccttggag tcagcagtat aaagaggttg ctgctatct;
                                                                        840
cttcatagga acaacaaaat cacatcctcc aatacctgat actctctcct ctgatgcaaa
                                                                        900
agattttctg ctcaagtgtc tgcaggaggt accaaatctg cggccaaccg catctgagct
                                                                        960
actaaagcat cettttgtta tggggaaaca caaggagtet gettetaetg atettggtte
                                                                       1020
totcctoaac aatcttaoca ctccactacc ottacacata aataacacca agagcactcc
                                                                       1080
agattctact tgcgacgatg taggtgacat gtgtaacttt ggcagtttga attattcact
                                                                       1140
totagateet gioaaateaa teeaaaacaa aaatttatog caacaaaatg ataatogage
                                                                       1200
tgatçaagac gatatgtgtt tgataqatga tgagaatttc ttgacatttg acggagaaa:
                                                                       1260
gagttctacc cttgaaaaag attgtcatct gaagaagagc tgtgatgaca taagtgatat
                                                                       1320
gtccattgct ttgaagtcca aatttgacga aagtcctggt aatggagaga aagagtctac
```

```
aatgagcatg gaatgtgacc aaccttcata ctcagaggat gatgatgagc tgaccgagtc
aaaaattaaa gotttottag atgagaaggo tgoagatota aagaagttac agactootot
ctatgaagaa ttctacaata gtttgatcac attctctccc agttgtatgg agagtaattt
aagtaacagt aaaagagagg acactgctcg tgctttcctg aaactgcctc caaaaagcag
etcaccgagt cggggecete ttggtggtte acetteasga geaacagaeg caactagtte
agetteacag gatggtgtat cageacgggt cacagactgg aggggeeteg ttgttgacae
taagcaggaa ttaagccagt gtgttgcttt gtcagagata gagaagaagt ggaaggaaga
ccttgatcaa gaactggaaa gaaagcgaca agaaatcatg ccccaagcag ggttgggatc
atccccaaga gacagaggca tgagccgaca gagagagaag tcgaggtttg catcaccagg
aaaatgactt gcacaaaaag tctccggctt tttgattttt gattgctcaa ctagtatata
tatotgtaac tottatotog otgtgatgaa aagtagacac gaggtttggt otgaatatat
gattotgaac togttgttga aggtattaça tgtgtgtaat gtgagtgtcg ggtgc
      <210> 9
      <211> 268
      <212> PRT
      <213> Arabidopsis thaliana
      <400> 9
Pro Pro Ile Ser Trp Arg Lys Gly Gln Leu Ile Gly Arg Gly Ala Phe
Gly Thr Val Tyr Met Gly Met Asn Leu Asp Ser Gly Glu Leu Leu Ala
                               25
Val Lys Glm Val Leu Ile Ala Ala Asn Phe Ala Ser Lys Glu Lys Thr
Gln Ala His Ile Gln Glu Leu Glu Glu Glu Val Lys Leu Leu Lys Asn
                       5 5
Leu Ser His Pro Asn Ile Val Arg Tyr Leu Gly Thr Val Arg Glu Asp
                   7 C
                                      7=
Asp Thr Leu Asn Ile Leu Leu Glu Phe Val Pro Gly Gly Ser Ile Ser
Ser Leu Leu Glu Lys Phe Gly Pro Phe Pro Glu Ser Val Val Arg Thr
                               105
Tyr Thr Arg Gln Leu Leu Leu Gly Leu Glu Tyr Leu His Asn His Ala
                           120
lie Met His Arg Asp lie Lys Gly Ala Asn lie Leu Val Asp Asn Lys
                       135
                                           140
Gly Cys Ile Lys Leu Ala Asp Phe Gly Ala Ser Lys Gln Val Ala Glu
                                       155
Leu Ala Thr Met Thr Gly Ala Lys Ser Met Lys Gly Thr Pro Tyr Trp
                                   170
Met Ala Pro Glu Val Ile Leu Gln Thr Gly His Ser Phe Ser Ala Asp
                               185
Ile Trp Ser Val Gly Cys Thr Val Ile Glu Met Val Thr Gly Lys Ala
                           200
Pro Trp Ser Gln Gln Tyr Lys Glu Val Ala Ala Ile Phe Phe Ile Gly
                       215
                                           220
Thr Thr Lys Ser His Pro Pro Ile Pro Asr Thr Leu Ser Ser Asp Ala
                   230
                                       235
```

1500

1560

1620

1680

1740

1800

1860

1920

1980

2040

2100

2155

Lys Asp Phe Leu Leu Lys Cys Leu Gln Glu Val Pro Asn Leu Arg Pro

```
245
                                    250
                                                        255
Thr Ala Ser Glu Leu Leu Lys His Pro Phe Wal Met
            260
                                265
      <210> 10
      <211> 802
      <212> DNA
      <213> Arabidopsis thaliana
      <400> 10
tccgatttcg tggaggaaag gtcagttaat tggtcgcggc gcgtttggta cggtgtacat
                                                                        60
gggtatgaat cttgactccg gggagcttct cgccgtcaaa caggttctga ttgcagccaa
                                                                       120
ttttgcttcc aaggaaaaga ctcaggctca tattcaggag cttgaagaag aagttaagct
                                                                       180
tottaaaaat ototoocato otaatatagt tagatatitg gotacagtga gggaagatga
                                                                       240
taccetgaat atcetteteg agtttettee egeteeateg atateatege tettegagaa
                                                                       300
attiggacci titiccigaat cagitigiceg gacatacaca aggeaactge tititagggit
                                                                       360
ggagtacetg cacaateatg caattatgea cagagaeatt aagggggeta atateettgt
                                                                       420
ggataataaa ggatgcatta agcttgctga ttttggtgca tccaaacaag tagctgagtt
                                                                       480
coctacgato actograca aatctateaa agegacatea tattogatog eteeggaagt
                                                                       540
tateetteaa aetggacata gettetetge tgacatatgg agegtegget gtacagttat
                                                                       600
tgaaatggtg actgggaagg ctccttggag tcagcagtat aaagaggttg ctgctatctt
                                                                       660
cttcatagga acaacaaaat cacatcctcc aatacctgat actctctcct ctgatgcaaa
                                                                       720
agattttctg ctcaagtgtc tgcaggaggt accaaatttg cggccaaccg catctgagct
                                                                       780
actaaagcat cottttgtta to
                                                                       802
      <210> 13
      <211> 642
      <212> PRT
      <213> Arabidopsis thaliana
      <400> 11
Arg Ser Leu Val Phe Arg Ser Thr Thr Asp Asp Glu Asn Gln Glu Asn
His Pro Pro Pro Phe Pro Ser Leu Leu Ala Asp Lys Ile Thr Ser Cys
lle Arg Lys Ser Met Val Phe Ala Lys Ser Gln Ser Pro Pro Asn Asn
                            4 C
Ser Thr Val Gln lie Lys Pro Pro lie Arg Trp Arg Lys Gly Gln Leu
                        £ £
Ile Gly Arg Gly Ala Phe Gly Thr Val Tyr Met Gly Met Asn Leu Asr
                    70
                                        7 E
Ser Gly Glu Leu Leu Ala Val Lys Gln Ala Leu Ile Thr Ser Asn Cys
                5 9
                                    90
Ala Ser Lys Glu Lys Thr Gln Ala His Ile Gln Glu Leu Glu Glu Glu
            100
                                105
Val Lys Leu Leu Lys Asn Leu Ser His Pro Asn Ile Val Arg Tyr Leu
                            120
Gly Thr Val Arg Glu Asp Glu Thr Leu Asr Ile Leu Leu Glu Phe Val
                        135
Pro Gly Gly Ser Ile Ser Ser Leu Leu Glu Lys Phe Gly Ala Phe Pro
```

160

150

```
Glu Ser Val Val Arg Thr Tyr Thr Asn Gln Leu Leu Gly Leu Glu
               165
                                   176
Tvr Leu His Asn His Ala lle Met His Arg Asp lle Lys Gly Ala Asn
           180
                               185
lie Leu Val Asp Asn Gln Gly Cys lie Lys Leu Ala Asp Phe Gly Ala
                           200
Ser Lys Gln Val Ala Glu Leu Ala Thr Ile Ser Gly Ala Lys Ser Met
                       215
Lys Gly Thr Pro Tyr Trp Met Ala Pro Glu Val lie Leu Gln Thr Gly
                   230
                                      235
His Ser Phe Ser Ala Asp Ile Trp Ser Val Sly Cys Thr Val Ile Glu
               245
                                   250
Met Val Thr Gly Lys Ala Pro Trp Ser Gln Gln Tyr Lys Glu Ile Ala
           260
                               265
Ala Ile Phe His Ile Gly Thr Thr Lys Ser His Pro Pro Ile Pro Asp
                           280
Asn Ile Ser Ser Asp Ala Asn Asp Phe Leu Leu Lys Cys Leu Gln Gln
                      295
Glu Pro Asn Leu Arg Pro Thr Ala Ser Glu Leu Leu Lys His Pro Phe
                    310
                                       315
Val Thr Gly Lys Gln Lys Glu Ser Ala Ser Lys Asp Leu Thr Ser Phe
                                   33(
Met Asp Asn Ser Cys Ser Pro Leu Pro Ser Glu Leu Thr Asn Ile Thr
           340
                               345
Ser Tyr Gln Thr Ser Thr Ser Asp Asp Val Gly Asp Ile Cys Asn Leu
                           360
Gly Ser Leu Thr Cys Thr Leu Ala Phe Pro Glu Lys Ser Ile Glm Asm
                       375
Asn Ser Leu Cys Leu Lys Ser Asn Asn Gly Tyr Asp Asp Asp Asp
                   390
                                       305
Asn Asp Met Cys Leu Ile Asp Asp Glu Asr Phe Leu Thr Tyr Asn Gly
               405
                                   41(
Glu Thr Gly Pro Ser Leu Asp Asn Asn Thr Asp Ala Lys Lys Ser Cys
                               425
Asp Thr Met Ser Glu Ile Ser Asr Ile Leu Lys Cys Lys Phe Asp Glu
                           44(:
Asn Ser Gly Asn Gly Glu Thr Glu Thr Lys Val Ser Met Glu Val Asr
                       455
                                           460
His Pro Ser Tyr Ser Glu Asp Glu Asn Glu Leu Thr Glu Ser Lys Ile
                   470
                                        475
Lys Ala Phe Leu Asp Asp Lys Ala Ala Glu Leu Lys Lys Leu Gln Thr
               485
                                   496
Pro Leu Tyr Glu Glu Phe Tyr Asn Gly Met Ile Thr Cys Ser Pro Ile
                               505
Cys Met Glu Ser Asn Ile Asn Asn Asn Lys Arg Glu Glu Ala Pro Arg
       515
                           520
Gly Phe Leu Lys Leu Pro Pro Lys Ser Arg Ser Pro Ser Gln Gly His
                        535
Ile Gly Arg Ser Pro Ser Arg Ala Thr Asp Ala Ala Cys Cys Ser Lys
                   550
                                       555
Ser Pro Glu Ser Gly Asn Ser Ser Gly Ala Pro Lys Asn Ser Asn Ala
```

 Ser Ala Gly Ala Glu Glu Glu Glu Glu Ser Asn Ser Gln Ser Val Ala Leu Ser 580
 580
 585
 596
 596
 596
 596
 596
 596
 600
 605
 605
 605
 605
 605
 606
 605
 606
 605
 606
 605
 606
 605
 606
 605
 605
 605
 605
 605
 605
 605
 605
 605
 605
 605
 605
 605
 605
 605
 605
 605
 605
 605
 605
 605
 605
 605
 605
 605
 605
 605
 605
 605
 605
 605
 605
 605
 605
 605
 605
 605
 605
 605
 605
 605
 605
 605
 605
 605
 605
 605
 605
 605
 605
 605
 605
 605
 605
 605
 605
 605
 605
 605
 605
 605
 605
 605
 605
 605
 605
 605
 605
 605
 605
 605
 605
 605
 605
 605
 605
 605
 605
 605</

<210> 12 <211> 2193 <212> DNA <213> Arabidopsis thaliana

<400> 12

cgctcacttg tcttccgttc taccaccgac gatgagaatc aagagaatca tcctcctccg 6 C tttccttctc tcctcgccga taaaatcact tcctgtatcc gcaaatcaat ggttttcgcc 120 aaatcccagt cacctccgaa taactccacc gtacaaatca aacctccgat tcggtggcgc 180 aaaggtcagt taattggccg tggccctttt ggtactgtgt atatgggtat gaatctcgat 240 tccggtgagc ttctcgccgt taaacaggct ctgattacat ctaattgtgc atccaaggaa 300 aaaactcagg ctcatatica ggagcttgaa gaggaagtga agctactcaa gaatctctc: 360 catccaaata tagttagata tttgggtacg gtgagggaag atgaaacttt gaatatcttg 420 cttgaatttg ttcctggtgg atctatatct tcactcttgg agaaatttgg agcctttcct 480 gaatctgttg ttcggacata cacqaaccaa ctgcttttgg gattggagta ccttcataat 540 catgccatta tgcaccgtga cattaagggt gctaatatcc ttgtggataa tcaaggatgc 600 attaaacttg ctgattttgg tgcgtccaaa caggtagcgg agttggctac tatttcgggt 660 gccaaatcta tgaaaggaac tccctattgg atggctccag aagttattct tcaaaccggg 720 catagetttt etgetgatat tiggagigta geatecaeg teattgaaat geteactees 780 aaagctcctt ggagccagca atataaagag attgctgcta ttttccacat tggaacgacg 840 aaatcocatc ctccaatccc toacaatatc tcctctoaco caaatgattt tttoctcaac 900 tgtctgcagc aggaaccaaa tctgcgccca accgcttctg acctgctaaa gcatccatt: 960 ottacogoca aacagaagga atctocotct aaagatctta cttcatttat ogacaattca 1020 tgcagtcctt taccatcaga gttgactaac attacgagct atcaaacatc tacgagtgac 1080 gatgtaggag acatctgtaa cttgggtagt ctgacttgta cacttgcttt ccctgagaaa 1140 tcaatccaaa ataacagttt gtgtctgaaa agtaataacg ggtatgatga cgatgatgat 1200 aatgatatgt gtttgattga cgatgagaat ttcttgacat ataatggaga gactggccct 1260 agtettgaca ataatactga teccaaçaag ageteteata ceatgagtea eateteteat 1320 attttgaagt gcaaatttga cgaaaattct ggaaacggag aaacagagac gaaagttagt 1380 atggaagttg accatccatc atactcggag gatgaaaatg agctgactga gtcgaaaatc 1440 aaagetttet tagatgacaa geetgeagag ttaaagaagt tacagacgee tetgtacgaa 1500 gaattotaca acggtatgat cacatgotoc cocatotgoa tggagagtaa catoaataac 1560 aataaacgag aggaggcacc tcgtggtttc ttgaaactgc ctccaaaaag tcggtctccg 1620 agtcagggcc atattggtcg atcaccttct agagcaacag atgcagcctg ttgttccaag 1680 agtccagaaa gtggtaatag ctctggtgcc ccgaaçaata gcaatgcaag tgctggtgc: 1740 gaacaagaat caaacagtca aagtqtcgcg ctgtcggaga tagagaggaa gtggaaggaa 1800 gagetteate aagaaettea aagaaagega agagaeatta caegecaage agggategea 1860 tcatccccga gagatagaag cttgagccga catagagaga agtcaagatt tgcatctcca 1920 ggcaaatgat ctgtacaaaa gaaaagcagc caattttgca cttttgtctg taaggcttgt 1980

```
attgcttttg atctttcgat ttgctcatct agtatatatg atatagacat aaaattgtgc
caacttaaag titgaatata tatagatago taaactatti gottaagtag ggigigatgi
cagaatotto otocatatto agtottaacc caaccacaoa acaaatattt toogagaaatt
atcgaaagct tigittacti tcggtccggt ccc
      <210> 13
      <211> 268
      <212> PRT
      <213> Arabidopsis thaliana
      <400> 13
Pro Pro Ile Arg Trp Arg Lys Gly Gln Let Ile Gly Arg Gly Ala Phe
Gly Thr Val Tyr Met Gly Met Ash Leu Asp Ser Gly Glu Leu Leu Ala
           . 20
Val Lys Gln Ala Leu Ile Thr Ser Asn Cys Ala Ser Lys Glu Lys Thr
                            4 (
Gln Ala His Ile Gln Glu beu Glu Glu Glu Val Lys beu beu bys Asn
Leu Ser His Pro Asn Ile Val Arg Tyr Leu Gly Thr Val Arg Glu Asp
Glu Thr Leu Asn Ile Leu Leu Glu Phe Val Pro Gly Gly Ser Ile Ser
                                    9 C
Ser Leu Leu Glu Lys Phe Gly Ala Phe Pro Glu Ser Val Val Arg Thr
           100
                                105
Tyr Thr Asn Gln Leu Leu Leu Gly Leu Glu Tyr Leu His Asn His Ala
Ile Met His Arg Asp Ile Lys Gly Ala Asn Ile Leu Val Asp Asn Gln
                        135
Gly Cys lie Lys Leu Ala Asp Phe Gly Ala Ser Lys Gln Val Ala Glu
                    150
                                        155
Leu Ala Thr Ile Ser Gly Ala Lys Ser Met Lys Gly Thr Pro Tyr Trp
                165
                                    17(
Met Ala Pro Glu Val Ile Leu Gln Thr Gly His Ser Phe Ser Ala Asp
                                385
lie Trp Ser Val Gly Cys Thr Val lie Glu Met Val Thr Gly Lys Ala
                            20 C
                                                205
Pro Trp Ser Gln Gln Tyr Lys Glu Ile Ala Ala Ile Phe His Ile Gly
                        215
Thr Thr Lys Ser His Pro Pro Ile Pro Asp Asn Ile Ser Ser Asp Ala
                    23 C
                                        235
Asn Asp Phe Leu Leu Lys Cys Leu Gln Gln Glu Fro Asn Leu Arg Pro
                245
                                    25C
Thr Ala Ser Glu Leu Leu Lys His Pro Phe Val Thr
            260
                                265
      <210> 14
      <211> 804
```

2160

2193

<212> DNA

<213> Arabidopsis thaliana

```
<400> 14
cotocgatto ggtggcggaa aggtcagtta attggccgtg gcgcttttgg tactgtgtat
atgggtatga atctcgattc cggtgagctt ctcgccgtta aacaggctct gattacatct
aattgtgcat ccaaggaaaa aactcaggct catattcagg agcttgaaga ggaagtgaag
ctactcaaga atctctctca tccaaatata gttagatatt tgggtacggt gagggaagat
çaaactttga atatcttgct tgaatttgtt cctggtggat ctatatcttc actcttggag
aaatttggag cotttootga atotottott oggacataca ogaaccaact gottttggga
ttggagtacc ttcataatca tgccattatg caccgtgaca ttaagggtgc taatatcctt
gtogataatc aaggatocat taaacttoct cattttooto cotccaaaca gotagcogas
ttggctacta tttcgggtgc caaatctatg aaaggaactc cctattggat ggctccagaa
gttattcttc aaaccgggca tagcttttct gctgatattt ggagtgtagg atgcacagtg
attgaaatgg tgactggaaa agctccttgg agccaccaat ataaagagat tgctgctatt
ttccacattg caaccaccaa atcocatcct ccaatccctg acaatatctc ctctcaccca
aatgattttt tgctcaagtg tctgcagcag çaaccabatc tgcggccaac cgcttctgag
ctgctaaagc atccatttgt tacg
     <210> 15
      <211> 651
      <212> PRT
      <213> Arabidopsis thaliana
      <400> 15
Met Gln Asp Ile Leu Gly Ser Val Arg Arg Ser Leu Val Phe Arg Ser
                 Ē
                                    10
Ser Leu Ala Gly Asp Asp Gly Thr Ser Gly Gly Gly Leu Ser Gly Phe
                                25
Val Gly Lys Ile Asn Ser Ser Ile Arg Ser Ser Arg Ile Gly Leu Phe
                            40
Ser Lys Pro Pro Pro Gly Leu Pro Ala Pro Arg Lys Glu Glu Ala Pro
                        E, E
Ser Ile Arg Trp Arg Lys Gly Glu Leu Ile Gly Cys Gly Ala Phe Gly
                    70
Arg Val Tyr Met Gly Met Asn Leu Asp Ser Gly Glu Leu Leu Ala Ile
                2.3
Lys Gln Val Leu Ile Ala Pro Ser Ser Ala Ser Lys Glu Lys Thr Gln
                                105
Gly His Ile Arg Glu Leu Glu Glu Glu Val Gln Leu Leu Lys Asn Leu
        115
                            120
Ser His Pro Asn Ile Val Arg Tyr Leu Gly Thr Val Arg Glu Ser Asr
                        135
                                            140
Ser Leu Asn Ile Leu Met Glu Phe Val Pro Gly Gly Ser Ile Ser Ser
                                        155
Leu Leu Glu Lys Phe Gly Ser Phe Pro Glu Pro Val Ile Ile Met Tyr
                                    170
Thr Lys Gln Leu Leu Gly Leu Glu Tyr Leu His Asn Asn Gly Ile
                                185
Met His Arg Asp Ile Lys Gly Ala Asn Ile Leu Val Asp Asn Lys Gly
                            200
Cys lie Arg Leu Ala Asp Phe Gly Ala Ser Lys Lys Val Val Glu Leu
```

120

180

240

300

360

420

480

540

600

660

720

780

804

220

215

Ala Thr Val Asn Gly Ala Lys Ser Met Lys Gly Thr Pro Tyr Trp Met

```
225
                    230
                                       235
Ala Pro Glu Val Ile beu Gln Thr Gly His Ser Phe Ser Ala Asp Ile
                245
                                   250
Trp Ser Val Gly Cys Thr Val Ile Glu Met Ala Thr Gly Lys Pro Pro
            260
                               265
Trp Ser Glu Gln Tyr Gln Gln Phe Ala Ala Val Leu His Ile Gly Arg
                           280
Thr Lys Ala His Pro Pro lie Pro Glu Asp Leu Ser Pro Glu Ala Lys
                       295
                                           300
Asp Phe Leu Met Lys Cys Leu His Lys Glu Pro Ser Leu Arg Leu Ser
                   310
                                       315
Ala Thr Glu Leu Leu Gln His Pro Phe Val Thr Gly Lys Arg Gln Glu
                325
                                    330
Pro Tyr Pro Ala Tyr Arg Asn Ser Leu Thr Glu Cys Gly Asn Pro Ile
                               345
Thr Thr Gln Gly Met Asn Val Arg Ser Ser He Asn Ser Leu He Arg
                           360
Arg Ser'Thr Cys Ser Gly Leu Lys Asp Val Cys Glu Leu Gly Ser Leu
                        375
Arg Ser Ser Ile Ile Tyr Pro Gln Lys Ser Asn Asn Ser Gly Phe Gly
                    3.90
                                       395 .
Trp Arg Asp Gly Asp Ser Asp Asp Leu Cys Gln Thr Asp Met Asp Asp
           405
                                  410
Leu Cys Asn Ile Glu Ser Val Arg Asn Asn Val Leu Ser Glm Ser Thr
           420
                               425
                                                   430
Asp Leu Asn Lys Ser Phe Asn Pro Met Cys Asp Ser Thr Asp Asn Trp
                            440
Ser Cys Lys Phe Asp Glu Ser Pro Lys Val Met Lys Ser Lys Ser Asn
    450
                       455
                                           460
Leu Leu Ser Tyr Gln Ala Ser Gln Leu Gln Thr Gly Val Pro Cys Asp
                   47(
                                       475
Glu Glu Thr Ser Leu Thr Phe Ala Gly Gly Ser Ser Val Ala Glu Asp
                485
                                   490
Asp Tyr Lys Gly Thr Glu beu Lys Ile Lys Ser Phe Leu Asp Glu Lys
                               505
Ala Gin Asp Leu Lys Arg beu Gin Thr Pro Leu Beu Giu Glu Phe His
                           520
Asn Ala Met Asn Pro Gly Ile Pro Gln Gly Ala Leu Gly Asp Thr Asn
                      535
Ile Tyr Asn Leu Pro Asn Leu Pro Ser Ile Ser Lys Thr Pro Lys Arg
                   55 C
Leu Pro Ser Arg Arg Leu Ser Ala Ile Ser Asp Ala Met Pro Ser Pro
               565
                                    570
Leu Lys Ser Ser Lys Arg Thr Leu Asn Thr Ser Arg Val Met Gln Ser
                               585
Gly Thr Glu Pro Thr Gln Val Asn Glu Ser Thr Lys Lys Gly Val Asn
                           600
Asn Ser Arg Cys Phe Ser Glu Ile Arg Arg Lys Trp Glu Glu Glu Leu
                       615
                                           620
Tyr Glu Glu Leu Glu Arg Eis Arg Glu Asn Leu Arg Eis Ala Gly Ala
                   630
```

```
Gly Gly Lys Thr Pro Leu Ser Gly His Lys Gly
                645
      <210> 16
      <211> 2157
      <212> DNA
      <213> Arabidopsis thaliana
tottoactga totototaca cattoaccgt oggottotoa aatgoaggat attotoggat
cggttcgccg atccttggtt ttcccgtcgt ctttgcccgg acacgatggt actagcgccc
                                                                     60
                                                                     120
gaggitettag eggattegie eggaagatta actetagitat eegtagetet egaattegee
tottttotaa geogeoteca ggoottootg etectapaaa apaagaageg cegtegatto
                                                                     180
ggtggaggaa aggggaatta atcgcttgcg gtgcttttgg aagagtttac atgggaatça
                                                                     240
acctcgattc cggcgagctt cttgcaatta aacagctttt aatcgctcca agcagtgctt
                                                                     300
                                                                     360
caaaggagaa gactcagggt cacatccgag agcttgagga agaagtacaa cttcttaaga
                                                                     420
atctttcaca tccgaacatc gttagatact tgggtastgt aagagagat gattcgttga
                                                                     480
atattttgat ggagtttgtt cctggtggat caatatcatc tttgttggag aagtttggat
cttttcctga gcctgtcatt attatgtaca caaagcsact tctgcttggg ctggaatatc
                                                                     540
ttcacaacaa tgggatcatg catcgagata ttaagggggc aaatattttg gtcgataaca
                                                                     600
                                                                     660
aaggttgcat cagactcgca gattttggtg cttccaagaa agttgtagag ctagctactg
                                                                     720
taaatggtgc caaatctatg aaggggacgc cttattggat ggctcctgaa gtcattctcc
                                                                     780
agactggtca tagcttctct gctgatatat ggagtcttgg ctgcactgtg attgagatgg
                                                                     840
ctacggggaa gcctccctgg agcgagcagt atcagcagtt toctgctgtc cttcatattg
gragaacaaa ageteateet ecaatteeag aagacetete accagagget aaagacttte
                                                                     900
                                                                     960
taatgaaatg ottacacaaa gaaccaagot tgagactoto tgoaaccgaa ttgottcago
                                                                    1020
accognition cactograms of coccagos contacos tracognast tototracos
                                                                    1080
aatgtggaaa cccaataact actcaaggaa tgaatgttcg gagttcaata aattcgttga
tcaggagetc gacatettca eectteaagg atettetea actegeaagc ttgaggaett
                                                                   1140
ccattatata cccacacaac tcacataact caggatttgc ttggcgagat ggagactctc
                                                                   1200
atgacetttg teagacegat atggateate tetgeaacat teaateagte agaaacaate
                                                                   1260
                                                                    1320
ttttgtcaca gtccaccgat ttaaacaaga gttttaatcc catgtgtgat tccacggata
                                                                    1380
actggtcttg caagttigat gaaagcccaa aagtgatgaa aagcaaatct aacctgctt:
                                                                    1440
cttaccaagc ttctcaactc caaactggag ttccatgtga tgaggaaacc agcttaacat
                                                                    1500
ttgctggtgg ctcttccgtt gcagaggatg attataaagg cacagagttg aaaataaaa:
                                                                    1560
catttttgga tgagaaggct caggatttga aaaggttoca gacccctctg cttgaagaat
tccacaatgc tatgaatcca ggaatacccc aaggtgcact tggagacacc aatatctaca
                                                                   1620
atttaccaaa cttaccaact ataagcaaga cacctaaacg acttccgagt agacgactct
                                                                    1740
cagcaatcag tgatgctatg cccagcccac tcaaaagctc caaacgtaca ctgaacacaa
                                                                    1800
1860
taaataatag ccgttgtttc tcagagatac gtcggaagtg ggaagaagaa ctctatgaag
agettgagag geategagag aatetgegae aegetegtoe aggagggaag acteeattat
                                                                   1920
caggecacaa aggatagtga aeggetaaag agaaactgta tgtttettte ttatgttte
                                                                   1980
aaattactto ttogtatttt tttttgttgg tggggtaatt toatgageta gtatgatata
                                                                    2040
                                                                    2100
tgtagatagt tcttcaacgg ttacatagta ttattattta ttattaattt aattgcc
                                                                    2157
      <210> 17
      <211> 268
      <212> PRT
     <213> Arabidopsis thaliana
```

```
<400> 17
Pro Ser Ile Arg Trp Arg Lys Gly Glu Leu Ile Gly Cys Gly Ala Phe
Gly Arg Val Tyr Met Gly Met Asn Leu Ast Ser Gly Glu Leu Leu Ala
                                25
lle Lys Gln Val Leu Ile Ala Pro Ser Ser Ala Ser Lys Glu Lys Thr
                            40
Gln Gly His Ile Arg Glu Leu Glu Glu Glu Val Gln Leu Leu Lys Asn
                        5.5
Leu Ser His Pro Asn Ile Val Arg Tyr Leu Gly Thr Val Arg Glu Ser
                    70
Asp Ser Leu Asn Ile Leu Met Glu Phe Val Pro Gly Gly Ser Ile Ser
                                    90
Ser Leu Leu Glu Lys Phe Gly Ser Phe Prc Glu Fro Val Ile Ile Met
                                105
Tyr Thr Lys Gln Leu Leu Leu Gly Leu Glu Tyr Leu His Asn Asn Gly
        115
                            120
Ile Met His Arg Asp Ile Lys Gly Ala Asr Ile Leu Val Asp Asn Lys
                        135
Gly Cys lie Arg Leu Ala Asp Phe Gly Ala Ser Lys Lys Val Val Glu
                    150
                                        155
Leu Ala Thr Val Asn Gly Ala Lys Ser Met Lys Gly Thr Pro Tyr Trp
                165
                                    17(
Met Ala Pro Glu Val Ile Leu Glm Thr Gly His Ser Phe Ser Ala Asp
                                3 8 E
lie Trp Ser Val Gly Cys Thr Val lie Glu Met Ala Thr Gly Lvs Pro
                            200
Pro Trp Ser Glu Gln Tyr Gln Gln Phe Ala Ala Val Leu His Ile Gly
                        215
Arg Thr Lys Ala His Pro Pro Ile Pro Glu Asp Leu Ser Pro Glu Ala
                    230
                                       235
Lys Asp Phe Leu Met Lys Cys Leu His Lys Glu Pro Ser Leu Arg Leu
                                    250
Ser Ala Thr Glu Leu Leu Gln His Pro Phe Val Thr
            260
                                265
      <210> 18
      <211> 804
      <212> DNA
      <213> Arabidopsis thaliana
      <400> 18
ccgtcgattc ggtggaggaa aggggaatta atcggttgcg gtgcttttgg aagagtttac
                                                                        60
atgggaatga acctcgattc cggcgagctt cttgcaatta aacaggtttt aatcgctcca
                                                                       120
agcagtoctt caaaggagaa gactcaggot cacatccgag agcttgagga agaagtacaa
                                                                       180
cttcttaaga atctttcaca tccgaacatc ottagatact tgggtactgt aagagagagt
                                                                       240
gattcgttga atattttgat ggagtttgtt cctggtggat caatatcatc tttgttggag
                                                                       300
aagtttggat cttttcctga gcctgtgatt attatgtaca caaagcaact tctgcttggc
                                                                       360
ctggaatatc ttcacaacaa tgggatcatg catcgagata ttaagggggc aaatattttg
                                                                       420
gtcgataaca aaggttgcat cagactcgca gattttggtg cttccaagaa agttgtagag
                                                                       480
ctagctacts tasatggtgc casatctats aaggggacgc cttattggat ggctcctoaa
```

```
gtcattctcc agactggtca tagcttctct gctgatatat ggagtgttgg gtgcactgtg
attgagatgg ctacggggaa gcctccctgg agcgagcagt atcagcagtt tgctgctgtc
cttcatattg gtagaacaaa agctcatcct ccaattccag aagacctctc accagaggct
aaagacttto taatgaaatg ottacacaaa gaaccaagot tgagactoto tgcaaccgaa
ttgcttcagc acccgtttgt cact
      <210> 19
      <211> 690
      <212> PRT
      <213> Nicotiana tabacum
      <400> 19
Met Gln Asp Phe Ile Gly Ser Val Arg Arg Ser Leu Val Phe Lys Gln
Ser Gly Asp Phe Asp Thr Gly Ala Ala Gly Val Gly Ser Gly Phe Gly
                                25
Gly Phe Val Glu Lys Leu Gly Ser Ser Ile Arg Lys Ser Ser Ile Gly
                            4.0
lle Phe Ser Lys Ala His Val Pro Ala Leu Pro Ser Ile Ser Lys Ala
                        C C
Glu Leu Pro Ala Lys Ala Arg Lys Asp Asp Thr Pro Pro Ile Arg Trp
Arg Lys Gly Glu Met Ile Gly Cys Gly Ala Phe Gly Arg Val Tyr Met
                                     90
Gly Met Asn Val Asp Ser Gly Glu Leu Leu Ala Ile Lys Glu Val Ser
                                3 O E
                                                    1 1 C
Ile Ala Met Asn Gly Ala Ser Arc Glu Arc Ala Gln Ala His Val Arc
                            120
                                                125
Glu Leu Glu Glu Glu Val Asn Leu Leu Lys Asn Leu Ser His Pro Asn
                        135
                                             140
Ile Val Arg Tyr Leu Gly Thr Ala Arg Glu Ala Gly Ser Leu Asn Ile
                    150
                                        155
Leu Leu Glu Phe Val Pro Gly Gly Ser Ile Ser Ser Leu Leu Gly Lys
                                     170
Phe Gly Ser Phe Pro Glu Ser Val lle Arg Met Tyr Thr Lys Gln Leu
            180
                                185
Leu Leu Gly Leu Glu Tyr Leu His Lys Asn Gly Ile Met His Arg Asp
                            200
lle Lys Gly Ala Asn Ile Leu Val Asp Asn Lys Gly Cys lle Lys Leu
                        215
Ala Asp Phe Gly Ala Ser Lys Lys Val Val Glu Leu Ala Thr Met Thr
                    230
                                         235
Gly Ala Lys Ser Met Lys Gly Thr Pro Tyr Trp Met Ala Pro Glu Val
                245
                                     250
lle Leu Gir Thr Gly His Ser Pne Ser Ala Asp Ile Trp Ser Val Gly
           . 260
                                265
Cys Thr lie Ile Glu Met Ala Thr Gly Lys Pro Pro Trp Ser Gln Gln
                             280
                                                 285
Tyr Gln Glu Val Ala Ala Leu Phe His Ile Gly Thr Thr Lys Ser His
                        295
                                             300
Pro Pro Ile Pro Glu His Leu Ser Ala Glu Ser Lys Asp Phe Leu Leu
```

660

720

780

£03

```
3.05
                   310
                                       315
Lys Cys Leu Gln Lys Glu Pro His Leu Arc His Ser Ala Ser Asn Leu
                325
                                   330
Leu Gln His Pro Phe Val Thr Ala Glu His Gln Glu Ala Arg Pro Phe
                                345
Leu Arg Ser Ser Phe Met Gly Asn Pro Glu Asn Met Ala Ala Gln Arc
                           360
Met Asp Val Arg Thr Ser Ile Ile Pro Asr Met Arg Ala Ser Cys Asn
                        375
Gly Leu Lys Asp Val Cys Gly Val Ser Ala Val Arg Cys Ser Thr Val
                   390
                                       395
Tyr Pro Glu Asn Ser Leu Gly Lys Glu Ser Leu Trp Lys Leu Gly Asn
               405
                                   41(
Ser Asp Asp Asp Met Cys Gin Met Asp Asn Asp Asp Phe Met Phe Gly
            420
                                425
Ala Ser Val Lys Cys Ser Ser Asp Leu His Ser Fro Ala Asp Tyr Lys
                           44C
                                               445
Ser Phe Asn Pro Met Cys Glu Pro Asp Asn Asp Trp Pro Cys Lys Phe
                       455 . 460
Asp Glu Ser Pro Glu Leu Thr Lys Ser Glm Ala Asn Leu His Tyr Asp
                   470
                                        475
Gln Ala Thr Ile Lys Pro Thr Asn Asn Pro Ile Met Ser Tyr Lys Glu
                485
                                   49(
Asp Leu Ala Phe Thr Phe Pro Ser Gly Gln Ser Ala Ala Glu Asp Asp
           500
                                505
Asp Glu Leu Thr Glu Ser Lys lie Arg Ala Phe Leu Asp Glu Lys Ala
                                               525
Met Asp Leu Lys Lys Leu Gln Thr Pro Leu Tyr Glu Gly Phe Tyr Asn
                        535
Ser Leu Asn Val Ser Ser Thr Pro Ser Pro Val Gly Thr Gly Asn Lys
                   550
                                       555
Glu Asn Val Pro Ser Asn lie Asn Leu Pro Pro Lys Ser Arg Ser Pro
                5€5
                                    57(
Lys Arg Met Leu Ser Arg Arg beu Ser Thr Ala lie Glu Gly Ala Cys
                                585
Ala Pro Ser Pro Val Thr His Ser Lys Arg Ile Ser Asm lie Gly Gly
                            60C
Leu Asn Gly Glu Ala lie Gln Glu Ala Gln Leu Pro Arg His Asn Glu
                       615
Trp Lys Asp Leu Leu Gly Ser Gln Arg Glu Ala Val Asn Ser Ser Phe
                    630
                                        635
Ser Glu Arg Gln Arg Arg Trp Lys Glu Glu Leu Asp Glu Glu Leu Gln
                645
                                    650
Arg Lys Arg Glu Ile Met Arg Gln Ala Val Asn Leu Ser Pro Pro Lys
            660
                               665
Asp Pro Ile Leu Asn Arg Cys Arg Ser Lys Ser Arg Pne Ala Ser Pro
                           680
                                               685
Gly Arc
    690
```

<210> 20

```
<211> 2527
<212> DNA
<213> Nicotiana tabacum
```

## <400> 20

(100)	20					
ctgaacccta	acgcacacaa	cttcactctt	tgctcctcca	aatctctctc	caatgcagga	60
tttcatcggc	tccattcacc	gatototggt	tttcaagcag	tccggagact	tcgataccgg	120
cactaccaat	gtcggcagcg	çattcgçagg	cttcgttgag	aaactaggtt	cgagcattcg	150
caaatcgagt	attogaatct	tctcgaaagc	tcatettect	gctcttccgt	ctatttctaa	240
agctgagctg	cccācāsaāā	ctcggaaaga	tgacactccg	ccaatccggt	ggaggaaagg	300
tgaaatgatt	ggatgtggtg	cttttggtag	ggtttatatg	cccatcaatc	ttgattctgg	360
agagttactc	gctataaagg	aggtttcgat	tgcgatgaat	ggtgcttcga	gagagcgagc	420
acaagctcat	gttagagagc	ttgaggaaga	agtgaatcta	ttgaagaatc	tctcccatcc	480
caacatagtg	agatatttgg	gaactgcaag	agaggcagga	tcattaaata	tattgttgça	540
atttgttcct	ggtggctcaa	tctcgtcact	tttgggaaaa	tttggatcct	tccctgaatc	600
tgttataaga	atgtacacca	açcaattott	attagggttg	gaatacttgc	ataagaatcc	660
çattatgcac	agagatatta	agggagcaaa	catacttott	çacaataaag	gttgcattaa	720
acttoctoat	ttcggtgcat	ccaagaaggt	tottoaatto	cctactatca	ctggtoccaa	780
gtcaatgaag	ggtactccat	actggatggc	toccgaagto	attctgcaga	ctggccatag	840
cttctctgct	gacatatgga	gigicogatg	cactattatc	gaaatggcta	caggaaaacc	900
tccttggagc	cagcagtatc	aggaggttgc	tgctctcttc	catataggga	caaccaaatc	960
ccatccccc	atcccagagc	atctttctgc	tçaatcaaag	gacttcctat	taaaatgttt	1020
gcagaaggaa	ccgcacctga	ggcattctgc	atcaaattto	cttcagcatc	catttgttac	1080
agcagaacat	caggaagctc	goodttttct	togotoatoo	tttatgggaa	accccgaaaa	1140
catggcggcg	caaaggatgg	atgttaggac	ctcaatcatt	cctgatatga	gagcttcctg	1200
caatggtttg	aaagatgitti	çtogtattag	cectetesee	tgctccactg	tatatcccca	1260
gaattcctta	gggaaagagt	cactctggaa	actagçaaac	tctgatgatg	acatgtecca	1320
gatggataat	gatgatttta	tatttaatac	atctgtgaaa	tgcagttcag	atttocatto	1380
tcctgctaat	tataaçagtt	ttaatcctat	gtgtgaacct	çataacgatt	ggccatçcaa	1440
atttgatgaa	agtcccgagt	tçacgaaaag	tcaaçcaaac	ctocattato	atcaagcaac	1500
tattaagccc	actaataacc	ccatcatgtc	atacaaggag	catcttgctt	tcacatttcc	1560
aagtgggcaa	tctocaocco	açgatgatga	tgaattgaca	çagtctaaaa	ttagggcatt	1620
ccttgatgaa	aaggcaatgg	acttgaagaa	āctāceeece	ccactatato	aaggattcta	1680
caattccttg	aatotttcca	ccacaccgag	tcccgttggc	actgggaaca	aggaaaatgt	1740
tccaagtaac	ataaacttac	caccaaaaag	cagatcacca	aaacgtatgo	ttagcagaag	1800
octctctact	gccattgaag	gtacttatac	tcccacccca	gtgactcatt	ccaagccaat	1860
atcaaatatt	ggtggcctaa	atggtgaagc	tattcagçaa	gctcagttgc	cgaggcataa	1920
tgaatggaaa	gatcttcttg	gttctcaacg	tčasácsátt	aattcaagct	tctctgagag	1980
gcaaagaagg	tgcaaacaag	agcttgatga	agagttocaa	aggaaacgag	agattatoco	2040
tcaggcagtc	aacttatcac	caccaaagga	tccaattcta	aatccatgta	gaagtaaatc	2100
aaggtttgca	tctcctgqaa	çataaatgta	tgtacttgtg	tccctaaact	aaagtcagtt	2160
tgaagaatat	aattaatgat	cctgcaaccc	cačaacaāaā	agttagatgt	cttgagcagg	2220
tatacgaacg	tgagettttc	ttgacccgtt	actacagçaa	tatcagcgct	tgtcagatag	2280
agtgagctgt	tactacagca	atatctgtca	acctottaat	catattataa	aatgccaata	2340
atttgcgttg	tattcotttt	çatcattctc	ctgagagcat	tgtaagaaa	atgcaggcct	2400
ttttataacc	tatataagtg	ctctctcatg	ātsāttāccs	atattaaaac	gcagaçaaaa	2460
	catctgctga	attgtttgta	aaatgtgata	tattaatgta	tttaccetct	2520
tacaacc						2527

<210> 23 <211> 268 <212> PRT

## <213> Nicotiana tabacum

Pro Pro Ile Arg Trp Arg Lys Gly Glu Met Ile Gly Cys Gly Ala Phe 1( Gly Arg Val Tyr Met Gly Met Asn Val Asp Ser Gly Glu Leu Leu Ala Ile Lys Glu Val Ser Ile Ala Met Asn Gly Ala Ser Arg Glu Arg Ala Gln Ala His Val Arg Glu Leu Glu Glu Glu Val Asn Leu Leu Lys Asn Leu Ser His Pro Asn Ile Val Arg Tyr Leu Gly Thr Ala Arg Glu Ala 70 Gly Ser Leu Asn Ile Leu Leu Glu Phe Val Pro Gly Gly Ser Ile Ser 8.5 Ser Leu Leu Gly Lys Phe Gly Ser Phe Pro Glu Ser Val Ile Arg Met 105 Tyr Thr Lys Gln Leu Leu Gly Leu Glu Tyr Leu His Lys Asn Glv 120 Ile Met His Arc Asp Ile Lys Gly Ala Asn Ile Leu Val Asp Asn Lys 135 Gly Cys lie Lys Leu Ala Asp Phe Gly Ala Ser Lys Lys Val Val Glu 150 155 Leu Ala Thr Met Thr Gly Ala Lys Ser Met Lys Gly Thr Pro Tvr Trt 165 376 Met Ala Pro Glu Val Ile beu Gln Thr Gly His Ser Phe Ser Ala Ast 385 Ile Trp Ser Val Gly Cys Thr Ile Ile Glu Met Ala Thr Gly Lys Pro 200 Pro Trp Ser Gln Gln Tyr Gln Glu Val Ala Ala Leu Phe His Ile Gly 215 Thr Thr Lys Ser His Pro Pro Ile Pro Glu His Leu Ser Ala Glu Ser 230 235 Lys Asp Phe Leu Leu Lys Cys Leu Gin Lys Glu Pro His Leu Arq His 250 Ser Ala Ser Asn Leu Leu Gln His Pro Phe Val Thr 265

<210> 22

<211> 804

<212> DNA

<213> Nicotiana tabacum

<400> 22

```
ccgccaatccggtgcaggaaaggtgaaatcattggatgtggtgcttttggtagggtttatatggggatgaatcttgattctggagagttactcgctataaaggaggtttcgattgcgatcaatggtgcttccacagaggcgagcacaagctcatgttagagagcattgaggaagaagtgaatctattgaagaatctctccatcccaacatagtcagatatttgggaactgcaatgttggaggatcattaaatatattgttggaatttgttcctggtggctcaatctcgtcacttttgggaaaatttggatccttccctgaatctgttataagaatgtacaccaagcaattgttattaggg
```

	tgcataagaa					420	
gttgacaata	aaggttgcat	taaacttoct	gatttcggtg	catccaagaa	ggttgttgaa	480	
	tgactggtgc					540	
	agactggcca					600	
atcgaaatgg	ctacaggaaa	acctccttgg	agccagcagt	atcaggaggt	tgctgctctc	660	
	ggacaaccaa					720	
	tattaaaatg		paaccccacc	tgaggcattc	tgcatcaaat	750	
ttgcttcagc	atccatttgt	taca				804	